

REMARKS

Claims 1, 8-10, 15, 21-23, 25, 29, 31, and 34-36 are amended. Claims 1-36 are pending in the application. The amendments to the claims as indicated herein do not add any new matter to this application.

SUMMARY OF THE REJECTIONS

Claims 1-6, 8-13, 15-22, 24-34, and 36 were rejected under 35 U.S.C. § 102(e) as being unpatentable over U.S. Patent Application Publication No. 2002/0131362 to Callon (“Callon”).

Claims 7, 14, and 35 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Callon.

Claim 23 was rejected under 35 U.S.C. § 103(a) as being unpatentable over Callon in view of U.S. Patent Application Publication No. 2003/0185153 to Kohler et al. (“Kohler”).

THE REJECTIONS BASED ON THE PRIOR ART

Claims 1, 8-10, 15, 21, 22, 25, 29, and 36 have been amended to more distinctly claim the invention.

Claims 1-6, 8, 9, 29-34, and 36

Claim 1 recites, *inter alia*, “**a management device receiving link state information about a link state for each network element in the plurality of network elements, wherein only data that was inherently communicated according to a routing protocol, between two or more of the plurality of network elements, was used to generate the link state information,**” and “**the management device determining whether any of the plurality of network elements are**

unreachable, based **only** on the link state information,” “wherein the **management device is not a router.**”

The Office Action alleges that Callon discloses receiving information about a link state for each network element in a plurality of network elements, and determining whether any of the plurality of network elements is unreachable based on the link state information, in paragraphs 5-6. These paragraphs describe how, according to a routing protocol, a router may detect a link failure and then broadcast update messages to neighboring routers to inform the neighboring routers of the routes that are no longer available.

However, Callon does not disclose a **non-router management device** receiving link state information, or such a device determining the unreachability of a network element based only on the link state information.

Furthermore, according to Callon, link failure information, which specifically identifies a failed link (paragraph 26), either is transmitted in the form of an update message that is additional to and separate from conventional routing protocol messages, or is embedded within a message field (paragraph 28) that does not seem to be specifically designed to carry such link failure information. In either case, the link failure information is not **data that is inherently communicated according to a routing protocol.** In both cases, the link failure information is **additional** to data that is inherently communicated with conventional routing protocol messages. Transmission of additional information consumes additional network bandwidth. If the link failure information is embedded within a field that is not specifically designed to carry such link failure information, then the link failure information may be pre-empting other information that the field actually was designed to carry.

For example, Callon gives the example of embedding such link failure information within a BGP UPDATE message. Yet, according to the BGP specification, there does not appear to be

a field in the BGP UPDATE message that is specifically designed to carry information that identifies a specific failed link. Therefore, it appears that to carry such link failure information, some field of a BGP UPDATE message that was not specifically designed to carry such link failure information would need to be modified. The modification could result in the exclusion, from the BGP UPDATE message, of the data that the modified field actually was designed to carry. BGP UPDATE messages do not appear to **inherently** carry the kind of link failure information that Callon discloses.

In contrast, because the method of Claim 1 does not require the transmission of data that is additional to what is inherently communicated between network elements according to a routing protocol, the method of Claim 1 avoids consuming additional network bandwidth.

Therefore, Callon does not teach or suggest “**a management device receiving link state information about a link state for each network element in the plurality of network elements, wherein only data that was inherently communicated according to a routing protocol, between two or more of the plurality of network elements, was used to generate the link state information,**” and “**the management device determining whether any of the plurality of network elements are unreachable, based only on the link state information,**” “**wherein the management device is not a router,**” as recited in Claim 1. For at least the reasons discussed above, it is respectfully submitted that Claim 1 is patentable over Callon.

Claims 2-6, 8, and 9 depend from Claim 1 and therefore include the features of Claim 1 that are distinguished from Callon above. Therefore, for at least the reasons discussed above with relation to Claim 1, it is respectfully submitted that Claims 2-6, 8, and 9 are patentable over Callon.

Claim 29-34 recite computer-readable media carrying instructions that, when executed, cause one or more processors to perform the steps of the methods of Claims 1-6, respectively.

Therefore, for at least the reasons discussed above with regard to Claims 1-6, it is respectfully submitted that Claims 29-34 are patentable over Callon.

Claim 36 recites a computer system comprising means for performing the steps of the method of Claim 1. Therefore, for at least the reasons discussed above with regard to Claim 1, it is respectfully submitted that Claim 36 is patentable over Callon.

Claims 10-13

Claim 10 recites, *inter alia*, “**the management device** accessing the link state information from the first router, the link state information describing a connection between each network element in the plurality of network elements and at least one network element designated to be connected to that network element,” “**wherein the management device is not a router.”**

Callon does not teach or suggest a **non-router management device** accessing link state information from a router. For at least this reason, it is respectfully submitted that Claim 10 is patentable over Callon.

Claims 11-13 depend from Claim 10 and therefore include the features of Claim 10 that are distinguished from Callon above. Therefore, for at least the reasons discussed above with relation to Claim 10, it is respectfully submitted that Claims 11-13 are patentable over Callon.

Claims 15-20

Claim 15 recites, *inter alia*, “operating the plurality of network elements using a link state protocol that causes link state information to be generated, **wherein only data that was inherently communicated according to the link state protocol, between two or more of the plurality of network elements, was used to generate the link state information,**” and “**the**

management device detecting if any of the network elements are unreachable using **only** the link state information,” “wherein the **management device is not a router.**”

As is discussed above, Callon does not teach or suggest a **non-router management device** detecting the unreachability of network elements using **only** link state information that was generated using **only data that was inherently communicated according to a link state protocol.** As is discussed above, Callon’s approach involves the identification of failed links by information that is **additional** to data inherently communicated according to link state protocols, and Callon’s approach does not involve detection by a non-router management device.

For at least the reasons discussed above, it is respectfully submitted that Claim 15 is patentable over Callon.

Claims 16-20 depend from Claim 15 and therefore include the features of Claim 15 that are distinguished from Callon above. Therefore, for at least the reasons discussed above with relation to Claim 15, it is respectfully submitted that Claims 16-20 are patentable over Callon.

Claims 21-22, and 24

Claim 21 recites, *inter alia*, “**a management device** receiving link state information automatically from the plurality of network elements operating a link state protocol, the link the link state information from each network element indicating a status of a connection with an adjacent network element in the plurality of network elements, wherein **only data that was inherently communicated according to the link state protocol, between two or more of the plurality of network elements, was used to generate the link state information,**” and “**the management device** configuring a management policy for the plurality of network elements by subsequently determining, **based only on the link state information**, if one or more of the

plurality of network elements are reachable,” “wherein the **management device is not a router.**”

Callon does not teach or suggest a **non-router management device** receiving link state information automatically from a plurality of network elements. Callon also does not teach or suggest that such link state information is generated using **only data that was inherently communicated according to a link state protocol.** As is discussed above, Callon’s approach involves the identification of failed links by information that is **additional** to data inherently communicated according to link state protocols, and Callon’s approach does not involve a non-router management device receiving link state information.

For at least the reasons discussed above, it is respectfully submitted that Claim 21 is patentable over Callon.

Claims 22 and 24 depend from Claim 21 and therefore include the features of Claim 21 that are distinguished from Callon above. Therefore, for at least the reasons discussed above with relation to Claim 21, it is respectfully submitted that Claims 22 and 24 are patentable over Callon.

Claims 25-28

Claim 25 recites, *inter alia*, “a network interface to receive, at a **management device that is not a router**, link state information for the plurality of network elements, wherein **only data that was inherently communicated according to a routing protocol, between two or more of the plurality of network elements, was used to generate the link state information.**”

Callon does not teach or suggest receiving link state information at a **non-router management device**. Callon also does not teach or suggest that such link state information is generated using **only data that was inherently communicated according to a routing**

protocol. As is discussed above, Callon's approach involves the identification of failed links by information that is **additional** to data inherently communicated according to routing protocols, and Callon's approach does not involve a non-router management device receiving link state information.

For at least the reasons discussed above, it is respectfully submitted that Claim 25 is patentable over Callon.

Claims 26-28 depend from Claim 25 and therefore include the features of Claim 25 that are distinguished from Callon above. Therefore, for at least the reasons discussed above with relation to Claim 25, it is respectfully submitted that Claims 26-28 are patentable over Callon.

Claims 7, 14, and 35

Claims 7, 14, and 35 each depend from a claim distinguished from Callon above. By virtue of their dependence on these distinguished claims, Claims 7, 14, and 35 contain the features, distinguished from Callon, of the distinguished claims upon which they depend. Thus, Claims 7, 14, and 35 are patent over Callon, taken individually, for at least the reasons discussed above with regard to the distinguished claims upon which Claims 7, 14, and 35 depend.

Although the Office Action has implicitly taken "Official Notice" in rejecting Claims 7, 14, and 35, none of the subjects of the Official Notice allege the features of these claims that have been distinguished from Callon. Therefore, even if the Applicants acquiesced to the Official Notice implicitly taken to reject these claims, the combination of Callon and the subjects of the implied Official Notice still would not teach or suggest all of the features of Claims 7, 14, and 35.

Thus, there exists at least one feature in each of Claims 7, 14, and 35 that neither Callon nor the subjects of the implied Official Notice teaches or suggests. For at least the reasons

discussed above, it is respectfully submitted that Claims 7, 14, and 35 are patentable over Callon and the implied Official Notice under 35 USC § 103(a).

Claim 23

Claim 23 depends from Claim 21, and therefore contains all of the limitations of Claim 21. As is discussed above with regard to Claim 21, Callon does not teach or suggest a **non-router management device** receiving link state information automatically from the plurality of network elements, or that such link state information is generated using **only data that was inherently communicated according to a link state protocol**.

Kohler also does not teach or suggest a **non-router management device** receiving link state information automatically from the plurality of network elements, or that such link state information is generated using **only data that was inherently communicated according to a link state protocol**. The Office Action does not even allege that Kohler teaches or suggests these features.

Because neither Callon nor Kohler teaches or suggests the features discussed above, which Claim 23 contains by virtue of its dependence from Claim 21, it is respectfully submitted that Claim 23 is patentable over Callon and Kohler.

CONCLUSION

It is respectfully submitted that all of the pending claims are now in condition for allowance. Therefore, the issuance of a formal Notice of Allowance is believed next in order, and that action is most earnestly solicited.

The Examiner is respectfully requested to contact the undersigned by telephone if it is believed that such contact would further the examination of the present application.

If any applicable fee is missing or insufficient, throughout the pendency of this application, the Commissioner is hereby authorized to charge any applicable fees and to credit any overpayments to our Deposit Account No. 50-1302.

Respectfully submitted,

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Dated: December 22, 2004


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